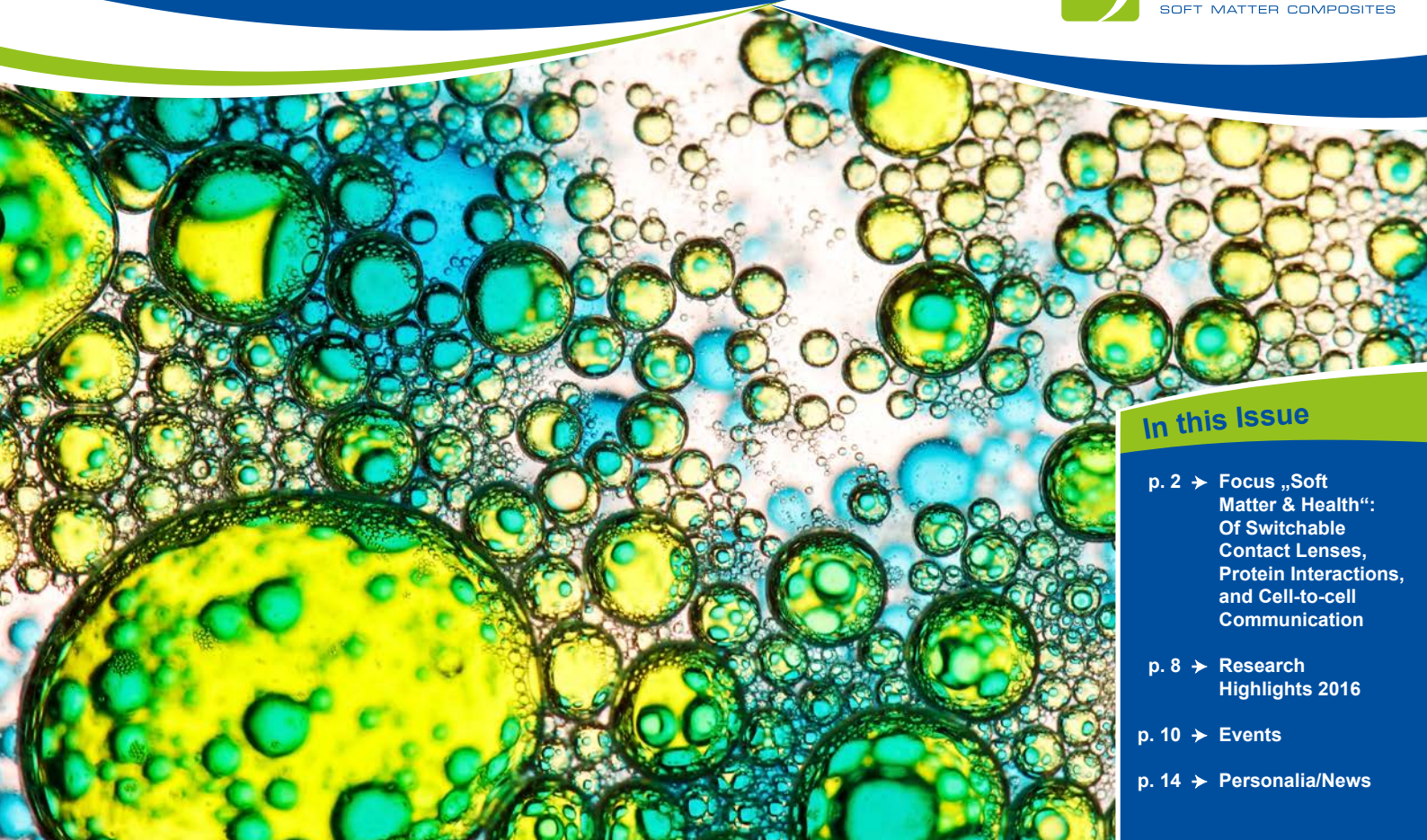
NEWSLETTER

Issue No 14 – 2017

SoftComp
SOFT MATTER COMPOSITES



In this Issue

p. 2 → Focus „Soft Matter & Health“: Of Switchable Contact Lenses, Protein Interactions, and Cell-to-cell Communication

p. 8 → Research Highlights 2016

p. 10 → Events

p. 14 → Personalia/News

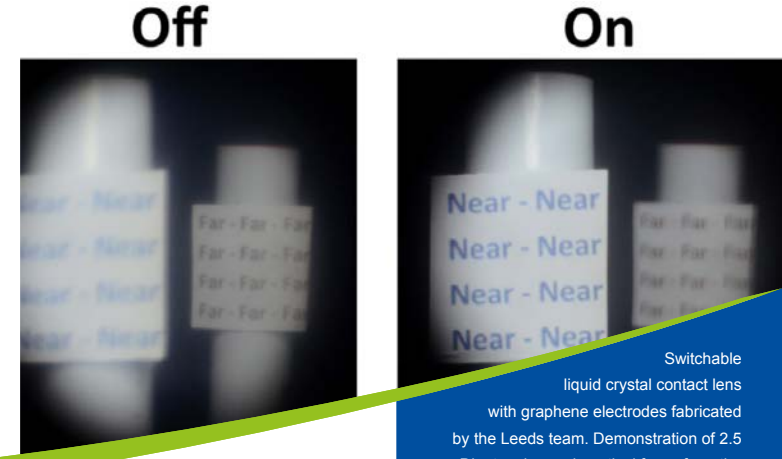
Editorial

Europe can look back at over 2000 years of glorious, but often tumultuous history. In particular, the last century should have shown us very clearly that working together is much more fruitful and beneficial to all Europeans than working against each other. Unfortunately, in the last few years, this development seems to have come to a halt, with nationalism on the rise again in many countries. Science and scientific knowledge are under siege by “alternative facts”.

We, as European scientists, are in a unique position to fight back. Science has long been an international endeavour, with scientists from various countries and continents working together in friendly competition for new insights and novel technological developments. Let us continue to do so, and to further strengthen the links which have been formed over decades. SoftComp is an ideal platform to foster this collaboration!

Angela Wenzik & Gerhard Gompper

FROM NOVEL SOFT MATERIALS TO SWITCHABLE CONTACT LENSES



Switchable liquid crystal contact lens with graphene electrodes fabricated by the Leeds team. Demonstration of 2.5 Dioptre change in optical focus from the contact lens.

by Cliff Jones, Leeds University, UK, j.c.jones@leeds.ac.uk;
also in the picture: his colleagues Mamatha Nagaraj (left), and Helen Gleeson.
Together they make up the new Leeds Liquid Crystals group.

The use of liquid crystals is well established in displays used in smart phones and large area TVs. During the Annual SoftComp Meeting 2016 in Ancona, a new academic team, having recently joined the Soft Matter Physics group at the University of Leeds, UK, was introduced to the community. Professors Cliff Jones, Helen Gleeson, and Dr. Mamatha Nagaraj say they made the move to Leeds because the group there is amongst the best in Europe. In Ancona Jones presented a selection of recent work on new liquid crystals and applications beyond conventional displays.

He described a new effect found in bent core liquid crystal compounds that form an optically isotropic dark conglomerate phase [1]. An electric field induces an optic axis parallel to the field direction so that the material appears to be isotropic in both ON and OFF states, but the refractive index is continuously lowered. Electrically tuneable refractive indices have enormous potential for switchable lenses and adaptive optics.

One such lens could be a switchable contact lens [2]. Jones and Gleeson are already working on adding liquid crystals to contact lenses to solve the problem of age-related eye deterioration, presbyopia. As they approach 50 years of age, contact lens users currently need to adapt to seeing two focused images for near and far distances simultaneously. The Leeds research allows the lenses to switch between focal lengths and provide the extra 2.5-dioptre power needed by the ageing eye to bring near objects sharply into view. Having successfully demonstrated the lens, the team are investigating printing invisible drive electronics onto it, and methods for automatically triggering operation by detecting gaze direction or other eye changes.

Jones has only recently joined academia, having previously founded the company Displaydata. As CTO, he helped invent and commercialize a shelf-edge labelling system that combined zero-power bistable LCD with novel RF communications. “Having solved many of the power issues for replacing paper labels in the retail sector, we are now in a good position to shrink the electronics yet further and provide exciting advances for the healthcare sector too”, says Jones.

References

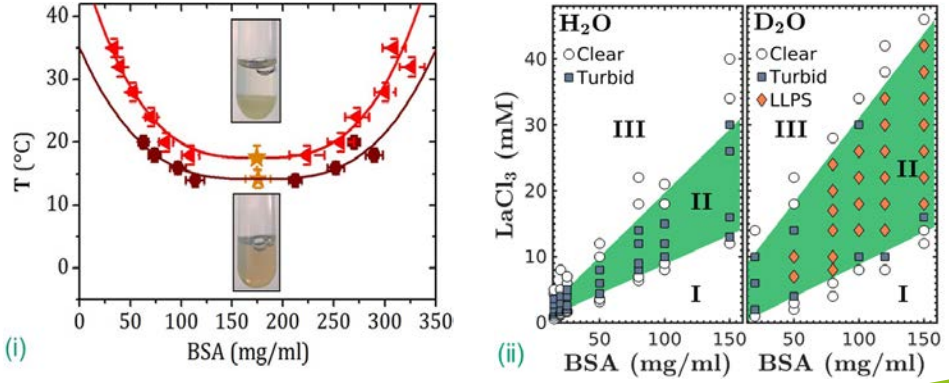
[1] Nagaraj M et al. Phys. Rev. E. 2015;91(4):042504.

[2] Syed IM et al. Opt. Express. 2015;23(8):9911-9916.

PROTEINS AS SOFT MATTER: INTERACTIONS, PHASE BEHAVIOUR AND HEALTH RESEARCH

Protein-protein interactions govern phase behaviour and stability in protein solutions. For this reason, they are relevant to the understanding of physiological and pathological processes, and crucial for the formulation and storage of biopharmaceuticals. Thus, a better understanding of protein-protein interactions and their effects as a function of solution conditions is bound to have an impact on a variety of health-related topics.

Protein condensation issues are related to a number of diseases: Alzheimer's and sickle cell anaemia are associated with aberrant protein-protein interactions leading to the formation of fibrillar aggregates in the brain and in red blood cells respectively; droplets of concentrated protein formed due to altered protein-protein interactions result in liquid-liquid phase separation (LLPS) as found in eye cataracts [1]. It is known from colloid science that short-range attractions between colloids can lead to LLPS. Coarse-grained soft matter approaches employing simple models from colloid theory are often successful in describing the main features underlying the behaviour of protein solutions, although proteins are highly complex and feature a broad variety



(i) LLPS heating BSA-YCl_3 samples above the lower critical temperature (gold star).

(ii) Appearance of a LLPS region in BSA-$LaCl_3$ samples in D_2O vs. H_2O.

by Olga Matsarskaia, Michal Braun, Stefano Da Vela, Fajun Zhang, and Frank Schreiber; all: University of Tübingen, Germany; first-name.last-name@uni-tuebingen.de

of interactions. In experiments performed in our group, we introduce short-range attractions by adding the trivalent salt YCl_3 to aqueous solutions of the negatively charged, globular protein bovine serum albumin (BSA). LLPS is then induced by the Y^{3+} cations bridging the BSA molecules. We recently showed this LLPS to be inducible by a temperature increase, a rather unusual observation for globular proteins, and presented a picture of the underlying mechanism [2] (Fig. (i)).

Using ultra-small angle X-ray scattering, we observed the formation of a reversible "arrested state" in concentrated BSA-YCl_3 systems at temperatures below the denaturation temperature of BSA. This state is similar to a gel of concentrated protein [3]. As protein-based drugs are increasingly successful, but the search for non-invasive routes of administration is challenging [4], these findings suggest a possible pharmaceutical application: concentrated native proteins in gel-like states could be promising for non-parenteral formulations.

Furthermore, soft matter-type studies on protein-protein interactions can improve the understanding of the behaviour of proteins under conditions normally used for their biological and pharmaceutical characterization. Techniques based on infrared absorption, nuclear magnetic resonance or neutron scattering often require the protein sample to be prepared in D_2O instead of H_2O. It is normally assumed that neither the structure nor the phase behaviour of proteins change significantly when H_2O is replaced by D_2O. Our recent work, however, has shown for BSA solutions that phase transitions such as LLPS and protein-protein interactions can be significantly altered when replacing H by D [5] (Fig. (ii)).

Interdisciplinary approaches such as the studies described here highlight the relevance of fundamental soft matter research to the fields of health and pharmaceutics.

References

[1] Gunton JD et al. Protein Condensation. Cambridge, New York: Cambridge Univ. Press: 2007.

[2] Matsarskaia O et al. J. Phys. Chem. B. 2016;120(31):7731–7736.

[3] Da Vela S et al. Soft Matter. 2016;12(46):9334-9341.

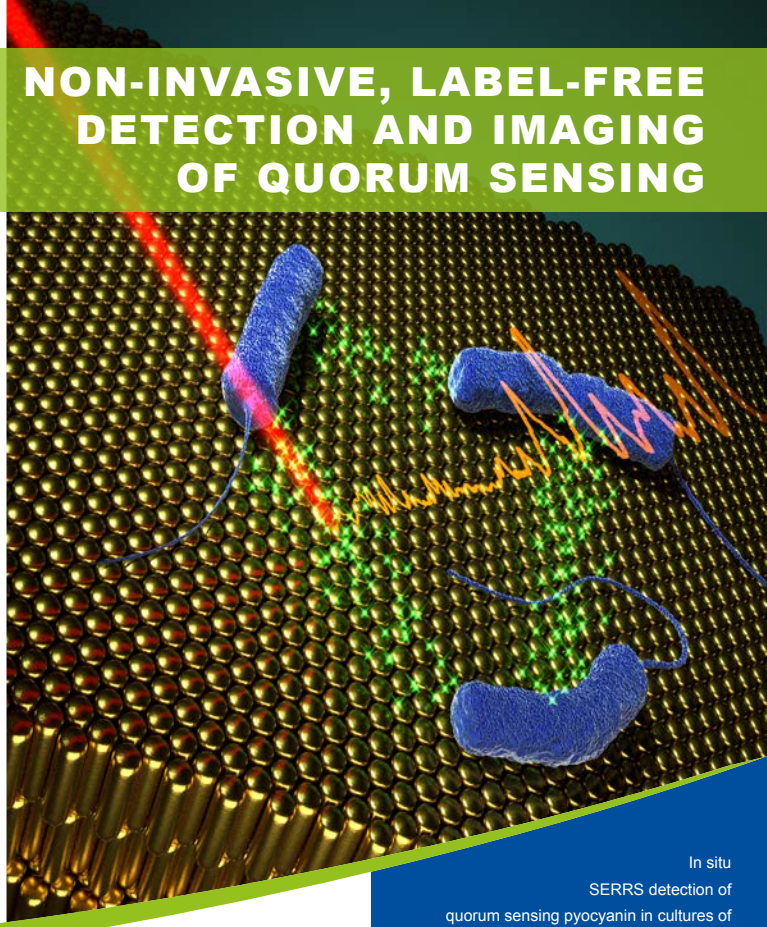
[4] Sharma PK et al. Indian J. Pharm. Sci. 2011;73(4):367-375.

[5] Braun MK et al. J. Phys. Chem. B. 2017;121(7):1731-1739.

NON-INVASIVE, LABEL-FREE DETECTION AND IMAGING OF QUORUM SENSING

The development of non-invasive methods for monitoring chemical communication in bacterial populations is important to provide fundamental insights into these processes as well as the necessary knowledge to manipulate these systems for applications in medicine, drug discovery and biotechnology. Here we describe the application of plasmonic hybrid materials as tools for the detection and imaging of quorum sensing (QS)-derived pyocyanin in live biofilms and in small aggregates of *Pseudomonas aeruginosa* bacteria, using surface enhanced resonance Raman scattering (SERRS) spectroscopy. Our work [1] opens new avenues for the application of plasmonic materials as high-performance analytical sensors in microbiology research and in clinical and industrial settings. In addition, bacterial detection through plasmonics-based ultrasensitive detection could aid in the development of more effective strategies for prevention and control of such microorganisms.

QS is a cell-to-cell communication process mediated by small diffusible signalling molecules, which allows bacterial populations to synchronize gene expression in a cell density-dependent manner. QS-regulated genes are associated with collective responses such as antibiotic production, virulence or biofilm formation, all of which are important for bacterial survival and pathogenicity [2]. Thus, understanding QS communication could provide us with a powerful



In situ SERRS detection of quorum sensing pyocyanin in cultures of *P. aeruginosa* bacteria grown on plasmonic nanostructured materials.


by Gustavo Bodelón (left), University of Vigo (UoV), Spain, gbodelon@uvigo.es,
Luis M. Liz-Marzán, UoV, CIC biomaGUNE, Ikerbasque, CIBER-BBN, Spain, llizmarzan@cicbiomagune.es

means of antagonizing harmful microbial strains and potentiating beneficial ones [3]. Biofilms are microbial sessile populations characterized by densely packed aggregates of cells embedded in self-produced extracellular polymer substances [4]. Bacterial biofilms are behind industrial biofouling and biocorrosion, and represent a threat to human health, as they are intimately linked with the pathogenesis of acute and persistent infectious diseases [5]. In addition, the high cell density within biofilms provides an optimal environment for intercellular communication processes, including QS.

We focused this work on the detection of pyocyanin, a QS-signalling molecule of *P. aeruginosa* that plays important roles in biofilm morphogenesis in this important human pathogen [1]. To this end, we fabricated hybrid materials comprising a plasmonic component embedded in a porous matrix, as multifunctional platforms to develop biofilms of *P. aeruginosa*, and simultaneously to detect pyocyanin by SERRS non-invasively (Fig.). The porous nature of the substrates plays an important role in restricting the contact of the plasmonic component with biomolecules that could contaminate the SERRS signal and thereby hinder the selectivity and sensitivity of the assay. The most efficient substrates comprise gold nanorod supercrystals (schematically shown in the figure), covered by mesoporous silica, which allowed us to detect pyocyanin at early growth times, during the formation of biofilms. Alternatively, the use of nanoparticle-doped hydrogels enabled detection in subcutaneous implants. Owing to the high enhancement factors of the plasmonic substrates, ultrasensitive molecular detection could be achieved, down to 10^{-15} M.

This approach, combining purpose-designed nanostructured hybrid materials and SERRS, demonstrates the potential of plasmonics for in situ, label-free monitoring of biological processes mediated by SERRS-active biomolecules (e.g. QS communication) in live microbial populations. It paves the way toward the assessment of harmful microbial contamination in medicine (e.g. catheters, implantable medical devices) and in the food industry.

References

[1] Bodelon G et al. Nat. Mater. 2016;15(11):1203-1211.

[2] Papenfort K et al. Nat. Rev. Microbiol. 2016;14(9):576-588.

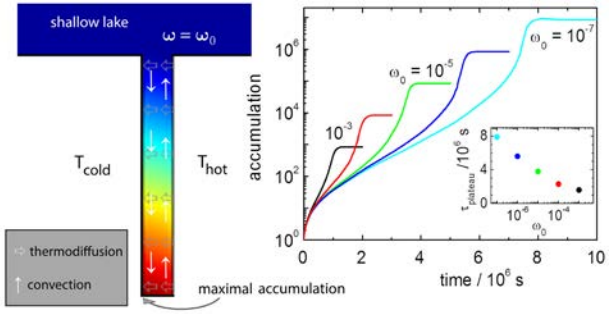
[3] LaSarre B et al. Microbiol. Mol. Biol. Rev. 2013;77:73-111.

[4] Hall-Stoodley L et al. Nat. Rev. Microbiol. 2004;2:95-108.

[5] Rybtke M at al. J. Mol. Biol. 2015;427(23):3628-45.

ORIGIN OF LIFE: ACCUMULATION OF FORMAMIDE IN HYDROTHERMAL PORES TO FORM PREBIOTIC NUCLEOBASES

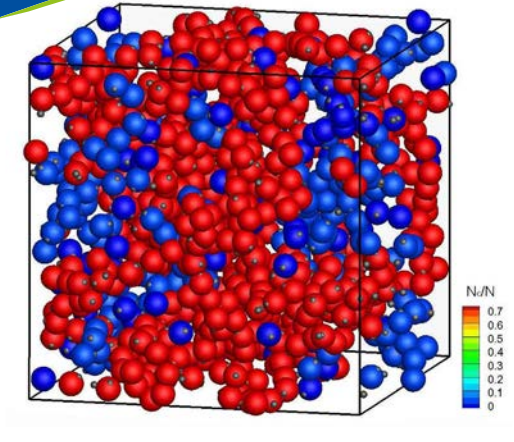
One of the central questions of humankind is: which chemical and physical conditions were necessary to make life possible? In this context, formamide plays an important role, because prebiotic molecules can be synthesized from concentrated formamide solutions. Using finite-element calculations combining thermophoresis and convection processes in hydrothermal pores, we showed that sufficiently high formamide concentrations can be accumulated to form prebiotic molecules. Depending on the initial formamide concentration, the aspect ratio of the pores and the ambient temperature, formamide concentrations of up to 85 wt % could be reached after 45–90 days, starting with an initial formamide weight fraction of 10^{-3} wt %, typical for concentrations in shallow lakes on early Earth. The stationary calculations show an effective accumulation only if the aspect ratio is above a certain threshold, and the corresponding transient studies display a sudden increase of the accumulation after a certain time. To explain both observations, we derived a simple heuristic model comparing the time to reach the top of the pore with the time to cross from the convective upstream towards the convective downstream. If the time to reach the top of the pore is shorter than the crossing time, the formamide molecules are flushed out of the pore. If the time is long enough, the formamide molecules can reach the downstream and accumulate at the bottom of the pore. Analyzing the optimal aspect ratio as a function of concentration, we find that at a weight fraction of 0.5, a minimal pore height is required for effective accumulation. At the same concentration, transient calculations show a maximum of the accumulation rate.



Read more: Niether D et al., PNAS. 2016;113(16):4272-4277

Finite element simulations show that a combination of convection and thermodiffusion enriches formamide in the pore (contour plot). The graph illustrates the accumulation normalized to the reservoir concentration ω_0 over time for different ω_0. The accumulation saturates around a formamide concentration of 85 wt %. The time necessary to reach the plateau $\tau_{plateau}$ depends on the reservoir concentration ω_0 (inset).

Large, temporary clusters lead to a dramatic slowdown in diffusion for patchy proteins.



DRAMATIC INFLUENCE OF PATCHY ATTRACTIONS ON SHORT-TIME PROTEIN DIFFUSION UNDER CROWDED CONDITIONS

Protein diffusion strongly influences numerous processes in biological cells, such as signal transmission. In the dense environment of the cell cytoplasm, protein contacts are omnipresent and individual proteins experience interactions with all the surrounding proteins. While attempts have been made previously to use analogies to colloids in order to model crowding effects, the complexity of protein-protein interactions and the need to measure protein diffusion over length scales comparable to the nearest-neighbour distance represent major obstacles for our understanding of the short-time dynamics in these systems. We have used quasielastic neutron scattering experiments combined with computer simulations to obtain quantitative information about the short-time diffusion of two well-characterized and highly stable bovine eye lens proteins with repulsive and weakly attractive interactions, respectively, in crowded solutions. While diffusion slows down with increasing concentration for both proteins, we find a decrease of the short-time diffusion coefficient for the protein with attractions of almost three orders of magnitude. Supported by computer simulations of colloid-like protein models, we attribute these drastic changes to specific, anisotropic, patchy short-range protein-protein interactions, which ultimately lead to the formation of large-scale temporal structures. The study provides new insight into emergent patterns of proteins triggered by specific, but typical, weak interactions. It implies that traditional in vitro experiments used to investigate specific protein interactions, recognition processes, and diffusion of proteins under dilute conditions, have to be considered with great caution when trying to understand processes in living cells.

Read more: Bucciarelli S et al., Sci. Adv. 2016;2:e1601432

ISMC2016 Attracts Nearly 700 Soft Matter Scientists

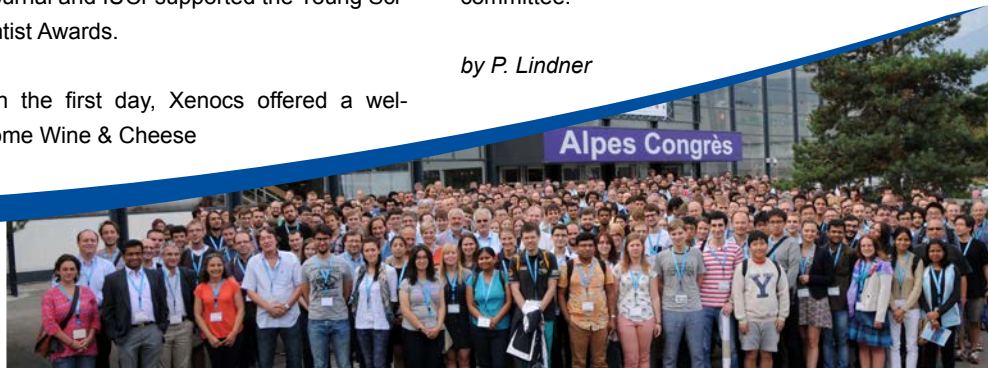
The 4th International Soft Matter Conference (ISMC2016) was held at the Alpes Congrès centre at Alpexo in Grenoble from 12-16 September 2016 and brought together nearly 700 scientists working in the field of soft matter including 200 students. The meeting was co-organized by ILL and ESRF together with the Université Grenoble Alpes, the CEA and CNRS under the auspices of the SoftComp consortium.

The conference programme included eight plenary lectures, 21 keynote presentations, 116 contributed talks selected from over 800 submitted abstracts, and 480 posters. With a total of 32 sessions (four parallel sessions per day), three lunch-time sessions, and two poster sessions, the conference covered a broad range of fundamental and applied aspects of soft matter and complex systems. Financial contributions by 36 sponsors from institutions and private companies helped to keep the cost of the conference down.

The opening ceremony featured short presentations by Prof. Christophe Ferrari, president of Grenoble Alpes Métropole, Prof. Patrick Levy, president of the ComUE of the Université Grenoble Alpes, Prof. William G. Stirling, Director of ILL and Dr. Francesco Sette, Director General of ESRF. Plenary speakers included Lucasian Professor of Mathematics Michael E. Cates (University of Cambridge), SoftComp co-founder Prof. Dieter Richter (Forschungszentrum Jülich) and six others. In addition, there were three award ceremonies; European Physical Journal E sponsored the Pierre-Gilles de Gennes prize, the Soft Matter Lectureship award was sponsored by the Soft Matter Journal and IUCr supported the Young Scientist Awards.

On the first day, Xenocs offered a welcome Wine & Cheese Party to the participants, featuring a world champion cheese maker from Grenoble. Many participants took part in the social programme, which comprised visits to Grenoble's old town, art museum, the Château de Vizille, Chartreuse liqueur cellars and the Chartreuse Monastery Museum. The conference dinner took place in the unusual environment of the Pôle Sud Skating Rink with ice skating ballet and jazz music. Overall, as many participants agreed, the conference was a great success in terms of the quality of the presentations, technical organization, and opportunities for discussions and exchanges, rewarding the three years of hard work by the local organizing committee.

by P. Lindner



Nearly 700 scienticts attented the ISMC2016.

Prof. Dr. Damien Baigl, ENS Paris, (second from right) was awarded the Soft Matter Lectureship award during the ISMC2016.

ISMC Satellite Workshop RheoSAS: Development of New Methodologies

The SoftComp topical workshop "In-situ rheology for neutron and X-ray scattering techniques" (RheoSAS), a satellite event of the ISMC2016, took place on 19-21 September 2016 at the ILL. Scientists from Europe and North-America attended the meeting which aimed to establish an exchange of ideas between scientists working on combined rheological and scattering techniques in order to trigger the creation of new methodologies and new instrumental tools necessary for the development of new materials. The workshop also highlighted the possibilities opened up by in situ rheology for scattering among the international rheology community and promoted new international collaborations.

RheoSAS was organized by a team of scattering and rheology experts based mainly at the ILL, Grenoble, France, and at Forschungszentrum Jülich, Germany, and was sponsored by both SoftComp and Anton-Paar GmbH, Graz, Austria. It attracted scientists interested in understanding the bulk structure and dynamics of liquids, dense suspensions and viscoelastic complex fluids under shear as well as the behaviour of soft interfaces under shear. In total, more than 40 scientists attended the workshop with 24 invited and contributed talks.

The workshop was concluded by a round table discussion chaired by Dr. João T. Cabral (Imperial College London, UK). The aim of the round table was to identify the current limitations in the existing experimental facilities and to examine how the rheo-sas community could be expanded.

A more efficient exploitation of existing scattering facilities, as well as current rheological methods and theory, simulation and analysis approaches was seen as the main route to fostering cutting-edge experiments and attracting new users.

by Y. Gerelli, L. Porcar, P. Lettinga and P. Gutfreund

Participants of the RheoSAS workshop at the ILL.

COMING UP

31st Conference of European Colloid and Interface Society (ECIS) 2017

September 3rd - 8th, 2017

Madrid, Spain

The ECIS 2017 will cover fundamental and applied advances in the fields of interfaces, dispersed systems, wetting, complex fluids, micro- and nano-engineered materials, upconversion nanoparticles, ion specific effects, self-assembly of surfactants, polymers and proteins, and advances in theory and instrumentation.

ecis2017@viajeseci.es
http://ecis2017madrid.com/

JCNS Laboratory Course - Neutron Scattering 2017

September 4th - 15th, 2017

Jülich and Garching, Germany

Lectures on neutron scattering, instruments, and their applications at Forschungszentrum Jülich. Hands-on experience with the instruments at the Heinz Maier-Leibnitz Zentrum MLZ in Garching. The course is open to students with a BSc or equivalent in physics, chemistry, material science, biology. Organised by Forschungszentrum Jülich, in cooperation with RWTH Aachen University.

neutronlab@fz-juelich.de
www.neutronlab.de

Ring Polymer Workshop

September 25th - 27th, 2017

Hersonissos, Crete, Greece

Recent advances and applications regarding ring polymers will be discussed during this workshop. Speakers include: R. Anderson (San Diego), R. Everaers (Lyon), G. Floudas (Ioannina}, M. Foster (Akron), S. Grayson (Tulane), N. Hadjichristidis (KAUST), M. Krutyeva (Jülich), Y. Joon Jung (Seoul), K. Kremer (Mainz), C. Likos (Vienna), V. Mavrantzas (Patras/Zurich), G. McKenna (Lubbock), H. Meyer (Strasbourg), D. Michieletto (Edinburgh), W. Pyckhout-Hintzen (Jülich), T. Sakaue (Fukuoka), S. Shanbhag (Tallahassee), C. Schroeder (Urbana), H. Watanabe (Kyoto).

Registration deadline: 27 September 2017
www.ringpolymers.synedry.com

49th IFF Spring School - Physics of Life

February 26th - March 9th, 2018

Jülich, Germany

The IFF Spring School is a two-week course for students and early-career researchers addressing a different cutting-edge solid state research area every year. Topics to be covered in 2018 will include: Proteins: Structure, Function, Interactions; Membranes and Cytoskeleton; Cell Adhesion and Migration; Mechanobiology; Blood Flow and Drug Delivery; Tissue Growth; Optogenetics; Synthetic Biology; Bioelectronics; Non-equilibrium Behaviour; Active Matter; Physics of Diseases: Alzheimer, Malaria, Cancer, Cardiovascular; Methods: NMR, Electron Microscopy, Superresolution, Simulations.

springschool@fz-juelich.de
www.iff-springschool.de

Workshop on Functional Polymers

March 19th - 21st, 2018

San Sebastian, Spain

The workshop focuses on advanced polymer materials bringing together physicists and chemists who are interested in novel polymer nano-composites, polymers functionalized with supramolecular groups and functional soft nano-objects. Topics: Single Chain Nanoparticles (SCNPs), One Component Nano Composites (OCNP), Supra Molecular Polymers (SMP).
Invited speakers will include: A. Alexander-Katz (MIT), G. Lemcoff (U. Ben Gurion), M.R. Bockstaller (U. Carnegie Mellon), A. C. Balazs (U. Pittsburg), S. K. Kumar (U. Columbia, NY), D. Vlassopoulos (FORTH Crete), M. Rubinstein (U. North Carolina), Z. Wang (U. Reading), M. Anthamatten (U. Rochester), R. Sijbesma (U. of T. Eindhoven), W. Binder (U. Halle).

juan.colmenero@ehu.es
www.fz-juelich.de/jcns/FunctPolym2018/

Annual European Rheology Conference (AERC) 2018

April 17th - 20th, 2018

Sorrento, Italy

Rheologists from all scientific fields, from academy to industry, are invited to submit contributions. Scientific sessions will include: Blends, Emulsions, Foams & Interfacial Rheology; Colloids & Suspensions; Experimental Methods & Progress in Rheometry; Food, Pharmaceutics & Cosmetics; Industrial Rheology & Processing; Living & Active Matter; Micro-, Nanofluidics & Microrheology; NonNewtonian Fluid Mechanics & Flow Instabilities; Polyelectrolites, Self Assembling Fluids & Gels; Polymer Solutions & Melts; Porous Media, Geo Fluids, Crude Oil & Derivatives; Solids, Glasses, & Granular Materials.

Rheology Course April 16th - 17th, 2018
Abstract submission deadline:
November 18th, 2017

r.pasquino@unina.it
https://rheology-esr.org/aerc2018

PERSONALIA/ NEWS

Prof. Dr. Patricia Bassereau from the Institute Curie of the Centre National de la Recherche Scientifique (CNRS) in Paris, France, has been awarded with the Autumn-Winter 2017 EPS Emmy Noether Distinction for Women in Physics from the European Physical Society for "her important and innovative work on the studies of soft matter and in vitro biological systems at the forefront of the Physics-Biology science. Her rich and fruitful career is an inspiration for young women researchers."

Dr. Marek Grzelczak from the Center for Cooperative Research in Biomaterials (CIC biomaGUNE) in San Sebastián, Spain has been awarded a Young Investigator Award by the Spanish Royal Society of Chemistry.

Prof. Dr. Luis Liz-Marzán from the University of Vigo, the Center for Cooperative Research in Biomaterials (CIC biomaGUNE), the Basque Foundation for Science Ikerbasque, and the Centro de Investigación Biomédica en Red Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Spain, has received several distinctions: For "his outstanding contributions to a range of topics in surface and colloid chemistry, notably nanoplasmonics", he was awarded with the JCIS - Darsh Wasan Award 2017 from the Journal of Colloid and Interface Science. He also received the 2017 Advanced Materials Laureate, awarded by the International Association of Advanced Materials for "outstanding research in Materials Science and Technology which may relate to Biological, Chemical, Engineering, Medical and Physical Sciences." The Blaise Pascal Medal in Materials Science 2017 was awarded to him by the European Academy of Sciences "in recognition of his contributions to the understanding of nanocrystal growth and self-assembly, plasmonic properties and sensing applications". Furthermore, he became a member of the European Academy of Sciences.

Dr. Leonardo Scarabelli has received a 2017 IUPAC-Solvay International Award for Young Chemists for his PhD thesis "Synthesis and Self-Assembly of Anisotropic Plasmonic Nanoparticles" conducted under Luis Liz-Marzán's supervision at the Center for Cooperative Research in Biomaterials (CIC biomaGUNE) in San Sebastián, Spain.

Prof. Dr. Stephan Förster was appointed head of the Institute of Neutron Scattering at Forschungszentrum Jülich, Germany on 7 April, succeeding Prof. Dr. Dieter Richter. Stephan Förster studied chemistry in Mainz, where he also completed his doctorate. Further stages in the scientist's career include Potsdam, Hamburg, and most recently the University of Bayreuth, where he was Professor in the Department of Physical Chemistry.

Hugo Bohn retired as the SoftComp newsletter editor last year. We thank him very much for his work over a period of more than 10 years! Since the start of the European Network of Excellence SoftComp in 2005, Hugo Bohn has been responsible for editing and producing the newsletter. He has done this job with great enthusiasm, and we all appreciated the discussions with him about the scientific content and layout. All newsletters will remain accessible on the SoftComp website in the future. Starting with the current edition, Angela Wenzik has taken over as the editor of the SoftComp newsletter.

Relaunch of the SoftComp Website

We have been discussing a redesign and relaunch of the SoftComp website for several years. In fact, it is one of the legacies of Hugo Bohn to push for such a relaunch. This project has finally reached maturity: The new SoftComp website will go public soon! This will also start a new era for the SoftComp newsletter, which will be published mainly electronically in the future. If you are not a SoftComp member and would like to subscribe it, please visit

www.eu-softcomp.net

ESMI Turns EUSMI

In April 2017, the European Commission and Forschungszentrum Jülich signed the grant agreement on the distributed "European Soft Matter Infrastructure" (EUSMI). The European Commission will support EUSMI with 10 million Euros over a period of four years. EUSMI is the designated successor project of ESMI and is coordinated by Forschungszentrum Jülich. Through EUSMI, a total of fifteen European partners are to pool their in some cases unique facilities for undertaking physical studies on soft matter, for developing and synthesizing new materials and computer simulations, and will make this infrastructure available to external scientists for their research work.

www.eusmi-h2020.eu
Twitter: https://twitter.com/eusmi_h2020

Picture Credits:
Cover and Backcover: Fotalia (Maxim Shebeko); 2,3: Leeds University; 4: University of Tübingen; 6: Andrea La Porta, 7: Bodelón/Liz-Marzán; 8: Forschungszentrum Jülich; 9: University of Lund; 10, 11: ILL/S. Claisse, www.ill.eu. ISMC2016 images reprinted by permission of Taylor & Francis LLC, from Fragneto G at al., Neutron News, 2016;28(1):11-14.

SoftComp
SOFT MATTER COMPOSITES

Imprint

Published by:
Forschungszentrum Jülich GmbH
SoftComp NoE
52425 Jülich, Germany
Phone: + 49 2461 61-6048
Fax: + 49 2461 61-2410
Internet: www.eu-softcomp.net
Email: softcomp@fz-juelich.de

SoftComp Coordinator: Gerhard Gompper
Concept and Editing: Angela Wenzik
Design and layout: Ramona Bucher
Printing: Schloemer & Partner GmbH, Düren, Germany
As of July 2017

About SoftComp

SoftComp is a Network of Excellence – a tool developed under the 6th Framework Programme of the European Commission dealing with the integration of European research, with the intention of strengthening scientific and technological excellence. In particular, SoftComp aims to establish a knowledge base for the intelligent design of functional and nanoscale soft matter composites. It will do so by overcoming the present fragmentation of this important field for the development of new materials at the interface of non-living and living matter, where the delicate principles of self-assembly in polymeric, surfactant and colloidal matter prevail. This Network of Excellence has created an integrated team that is able to activate the European potential in soft matter composite materials and thus disseminate excellence through extensive training and knowledge transfer schemes. Since December 2009, when EU funding came to an end, Softcomp has been a self-supporting consortium consisting of 39 research groups belonging to 36 different institutions. Please visit our website for more information or to subscribe to our email newsletter: www.eu-softcomp.net/